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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|-----------------|-------------|----------------------|---------------------|
| 09/038,230 | 03/11/98 | KOYANAGI | T 1217-980347 |

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IM62/0510

EXAMINER

METZMAIER, D

| ART UNIT | PAPER NUMBER |
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1712

DATE MAILED: 05/10/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action SummaryApplication No.
09/038,230Applicant(s)
Koyanagi et al.Examiner
Daniel S. MetzmaierGroup Art Unit
1712☒ Responsive to communication(s) filed on amendment of 4/3/2000 and 4/28/2000 and CPA filed 4/28/2000.☐ This action is **FINAL**.☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims☒ Claim(s) 1 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.☒ Claim(s) 1 is/are rejected.☐ Claim(s) _____ is/are objected to.☐ Claims _____ are subject to restriction or election requirement.**Application Papers**☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.☐ The drawing(s) filed on _____ is/are objected to by the Examiner.☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.☐ The specification is objected to by the Examiner.☐ The oath or declaration is objected to by the Examiner.**Priority under 35 U.S.C. § 119**☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☒ received.☐ received in Application No. (Series Code/Serial Number) _____.☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).**Attachment(s)**☒ Notice of References Cited, PTO-892☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____☐ Interview Summary, PTO-413☐ Notice of Draftsperson's Patent Drawing Review, PTO-948☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 1712

DETAILED ACTION

Claim 1 is pending in the instant application. Claim 1 has been amended and claim 4 canceled by the amendment filed April 3, 2000¹, Paper No. 9. The continuation prosecution request (CPA) and preliminary amendment filed April 28, 2000 have been entered as Paper No. 11 and 12, respectively.

Continued Prosecution Application

1. The request filed on April 28, 2000, Paper No. 11, for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/038,230 is acceptable and a CPA has been established. An action on the CPA follows.

Response to Amendment

2. The cross-noting amendment to the specification after the title should be deleted as redundant. See 37 C.F.R. 1.78(2) and M.P.E.P. § 202.01, Seventh Edition, Revision 1, Feb. 2000.

Claims interpretation

3. Applicants claims are directed to inorganic oxide sols comprising a modified composite oxide particulates. Said sols have a dielectric constant of 10 to 85, a particle size range of 11 to 30 nanometers, and claim 1 is newly amended to recite specific classes of organosilane compounds. Said compounds are further limited to exhibiting a molecular polarizability of 2×10^{-40} to $850 \times 10^{-40} \text{ C}^2 \text{ m}^2 \text{ J}^{-1}$.

¹Said amendment is an after final amendment with a request for entry filed with the CPA request of April 28, 2000, Paper No. 11.

Art Unit: 1712

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1712

6. Claim 1 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kato et al., US 5,322,888. Kato et al (example 7) discloses composite sols of Optolake 1130F-2 which is a $\text{SiO}_2/\text{TiO}_2/\text{Fe}_2\text{O}_3$ composite having a particle size of 20 nm in methanol. Said coating composition is surface modified with γ -glycidoxypropyltriethoxysilane. The dielectric constant for methanol at 20°C is 31.2.

The claimed molecular polarizability would have been inherent to the reference exemplified γ -glycidoxypropyltriethoxysilane based on the close structural similarity to the instantly disclosed γ -glycidoxypropyltrimethoxysilane and γ -glycidoxypropylmethoxydiethoxysilane. See instant page 7, lines 1 et seq; particularly lines 17-18 which teach the related silanes as examples of compounds having the claimed molecular polarizability.

To the extent the claim differs in the silane surface modifier having the claimed molecular polarizability, compositions employing the instantly disclosed compounds having the molecular polarizability would have been obvious to one of ordinary skilled in the art at the time of applicants invention for the following reasons.

Kato et al (column 2, lines 35 et seq; particularly lines 68-69) teaches γ -glycidoxypropyltriethoxysilane and γ -glycidoxypropyltrimethoxysilane among other treating agents and makes no distinction therein. It would have been obvious to one of ordinary skilled in the art at the time of applicants invention to employ the γ -glycidoxypropyltrimethoxysilane for the

Art Unit: 1712

γ -glycidoxypolytriethoxysilane exemplified in the Kato et al reference as an obvious functional equivalent taught therein.

7. Claim 1 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kayanoki, US 5,858,077. Kayanoki '077 (examples and claims) discloses compositions comprising a composite metal oxide dispersed in methanol and/or isopropanol with the further addition of a polymerizing monomer. Kayanoki '077 (column 4, lines 46-53 and claims) teaches composite particle sol compositions (Optolake 1130 F-2 (A-8)) wherein the particles have a particle size of 10 nm and broadly may be 1 to 100 nm. Kayanoki '077 (example 1) teaches treating the methanol dispersed composite particle sol with γ -glycidoxypolytrimethoxysilane followed by the addition of isopropanol and a polymerization monomer.

The claimed dielectric constant property of the dispersion medium would have been expected to have been inherent to the dispersion medium disclosed in the Kayanoki '077 reference because methanol has a dielectric constant at 20°C of 31.2, isopropanol has a dielectric constant at 20°C of 18.62, and propanol is instantly disclosed as (see instant page 8, line 23) a suitable organic solvent useful in the instant application. The γ -glycidoxypolytrimethoxysilane is specifically disclosed (see instant page 7, lines 16-17) as useful in the instant application having the instantly disclosed and claimed molecular dispersibility.

To the extent the claims differ in the further addition of the polymerization monomer, there is no evidence of record to support this conclusion. Furthermore and assuming arguendo

Art Unit: 1712

any material effect to the dielectric constant were present due to the further addition of the polymerization monomer, the instant invention (see instant page 1, lines 5-15, particularly lines 7-8) and the Kayanoki '077 (column 1, lines 10 et seq) both teach coating compositions including hard coat coating agents. It would have been obvious to one of ordinary skilled in the art at the time of applicants invention to employ the intermediate sol as an intermediate for use in several different coating systems such as those shown by Kayanoki '077 (example 1 and examples 18-24).

It is further noted, Kayanoki '077 (column 4, lines 33-46) broadly teaches the use of numerous solvent systems including ethylene glycol and Kayanoki '077 (column 3, line 24 to column 4, line 18) broadly teaches numerous silane modifying agents including the classes of silanes claimed.

8. Kayanoki, 5,654,090, is considered cumulative to the above rejections. Attention is directed to the examples.

Response to Arguments

9. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Metzmaier whose telephone number is (703) 308-0451. The examiner can normally be reached on Monday through Friday from nine to five-thirty.

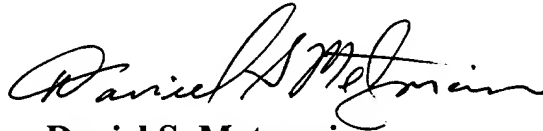
Art Unit: 1712

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson, can be reached at (703)308-2340.

Official Papers may be submitted to **Group 1700** by facsimile transmission at (703)305-5408 and Official After Final facsimile transmissions may be submitted to **Group 1700** by facsimile transmission at (703)305-3599 in accordance with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989).

Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 1700** receptionist whose telephone number is (703) 308-0661.

DSM
May 5, 2000


Daniel S. Metzmaier
Patent Examiner
Art Unit 1712